

Configuration Management Application Service

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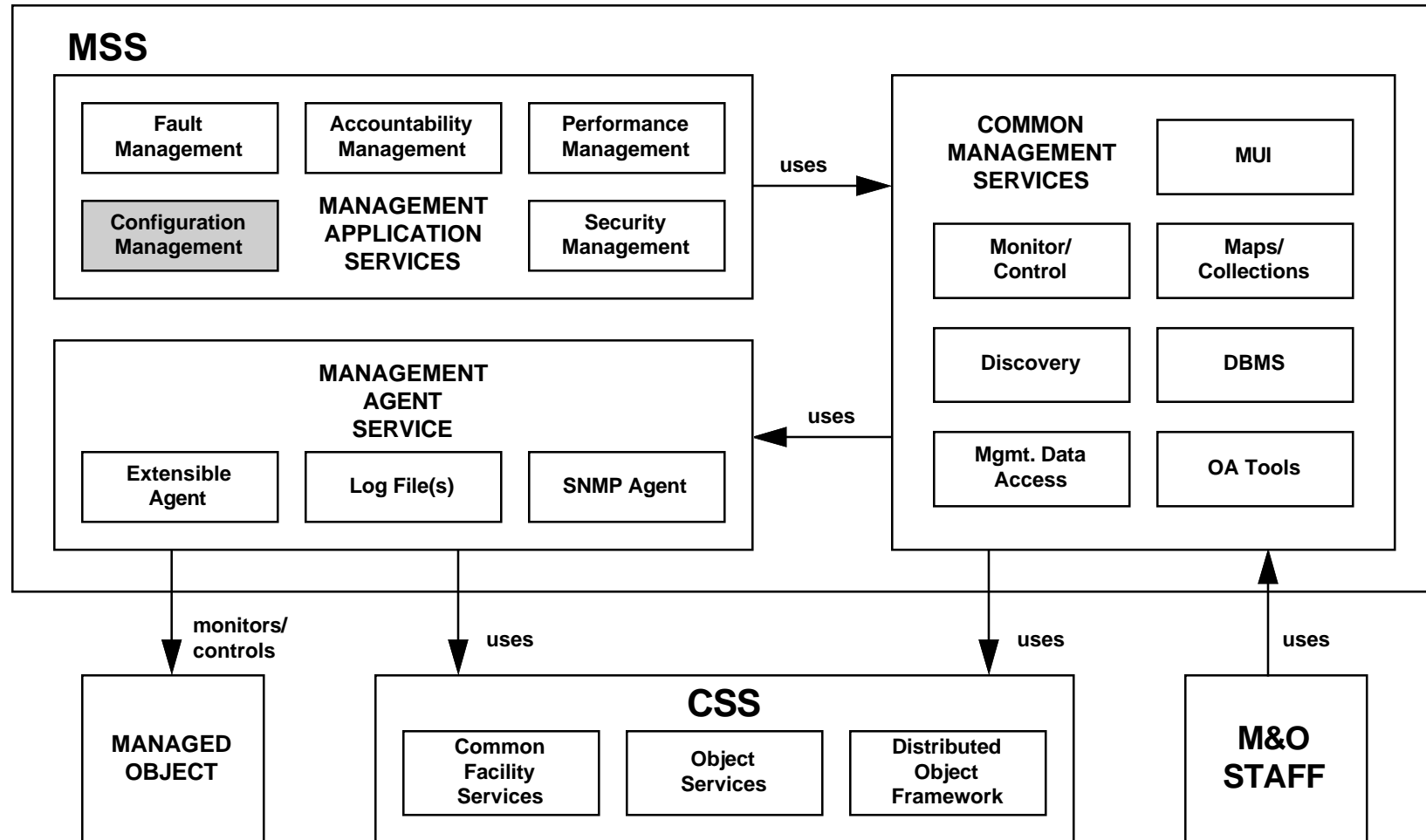
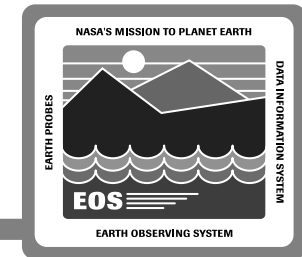
19 January 1995

Configuration Management Roadmap

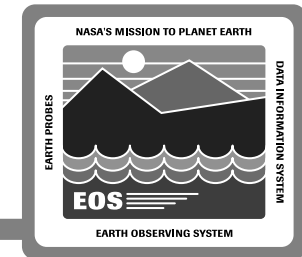


- **MSS Subsystem Design**
- **Capabilities by Release**
- **Context**
- **Design Decomposition**
- **Scenario**
- **Summary**

MSS Subsystem Design

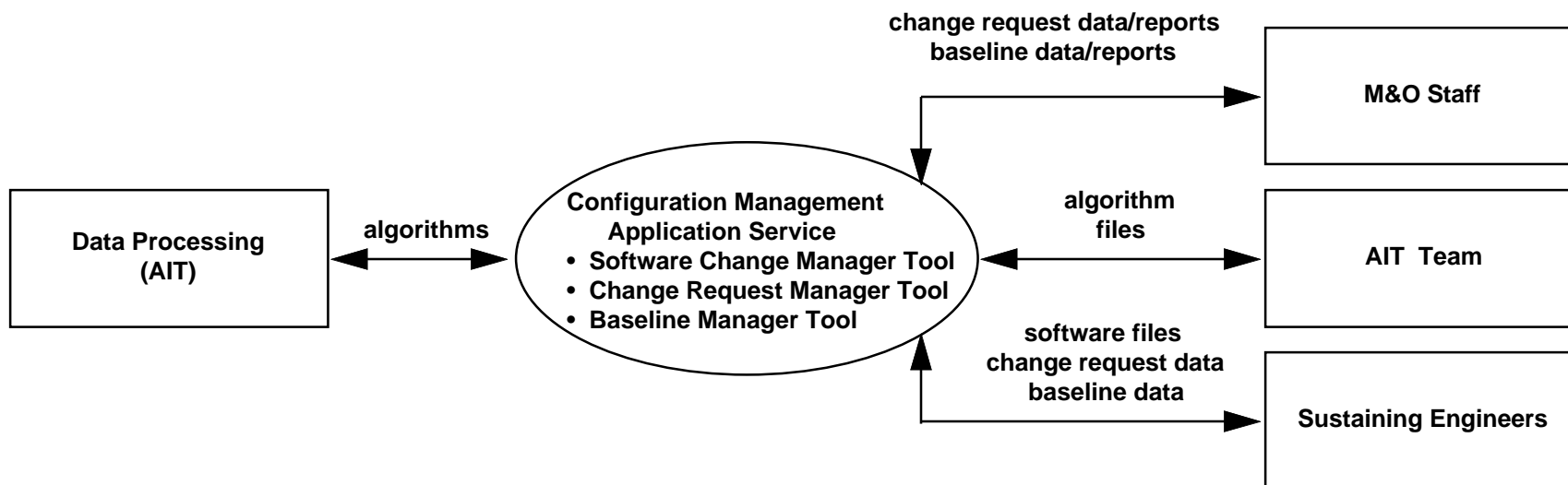
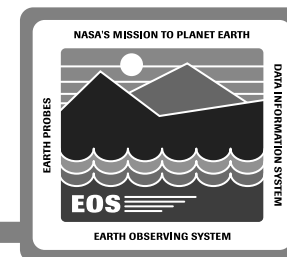


Configuration Management Capabilities by Release

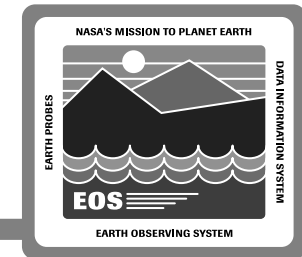


IR-1	Release A
<p>Software Change Management</p> <ul style="list-style-type: none">Software librariesSoftware version controlAssisted software buildsAudit trails of software changes	<p>Software Change Management</p> <ul style="list-style-type: none">Software librariesSoftware version controlAssisted software buildsAudit trails of software changes <p>Change Request Management</p> <ul style="list-style-type: none">Change request compositionChange request registration, processing and status tracking <p>Baseline Management</p> <ul style="list-style-type: none">Baseline identificationBaseline software and hardware identificationRecords of baseline changes

Configuration Management Context



Software Change Manager Design Decomposition



CMAS Software

- **Software Change Manager** service manager that controls the software library
- **M&O Staff IF** administrator's interface for entering commands and data and for viewing results
- **External User IF** software maintainer's interface for working with library files and data

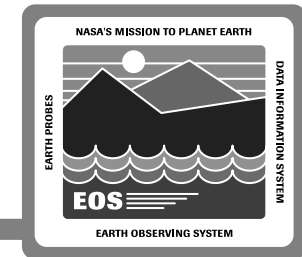
CMAS Data

- **Software Library** collection of files containing ECS custom software, scientific software, and associated test data, control data, and documentation
- **Library File** controlled copy of software, documentation, control data and test data
- **Access Profile** set of authorized operations for an individual or a group
- **Library Access** regulates access to operations on library files
- **Association** mapping of related files to facilitate group operations
- **Build Record** record of the files, tools, text and options used in constructing a build
- **Log** record of error and library modification events
- **Resource Change Request** proposed change to ECS resources that authorizes file changes
- **Software Change Report** formatted, ordered views of software library contents and operations

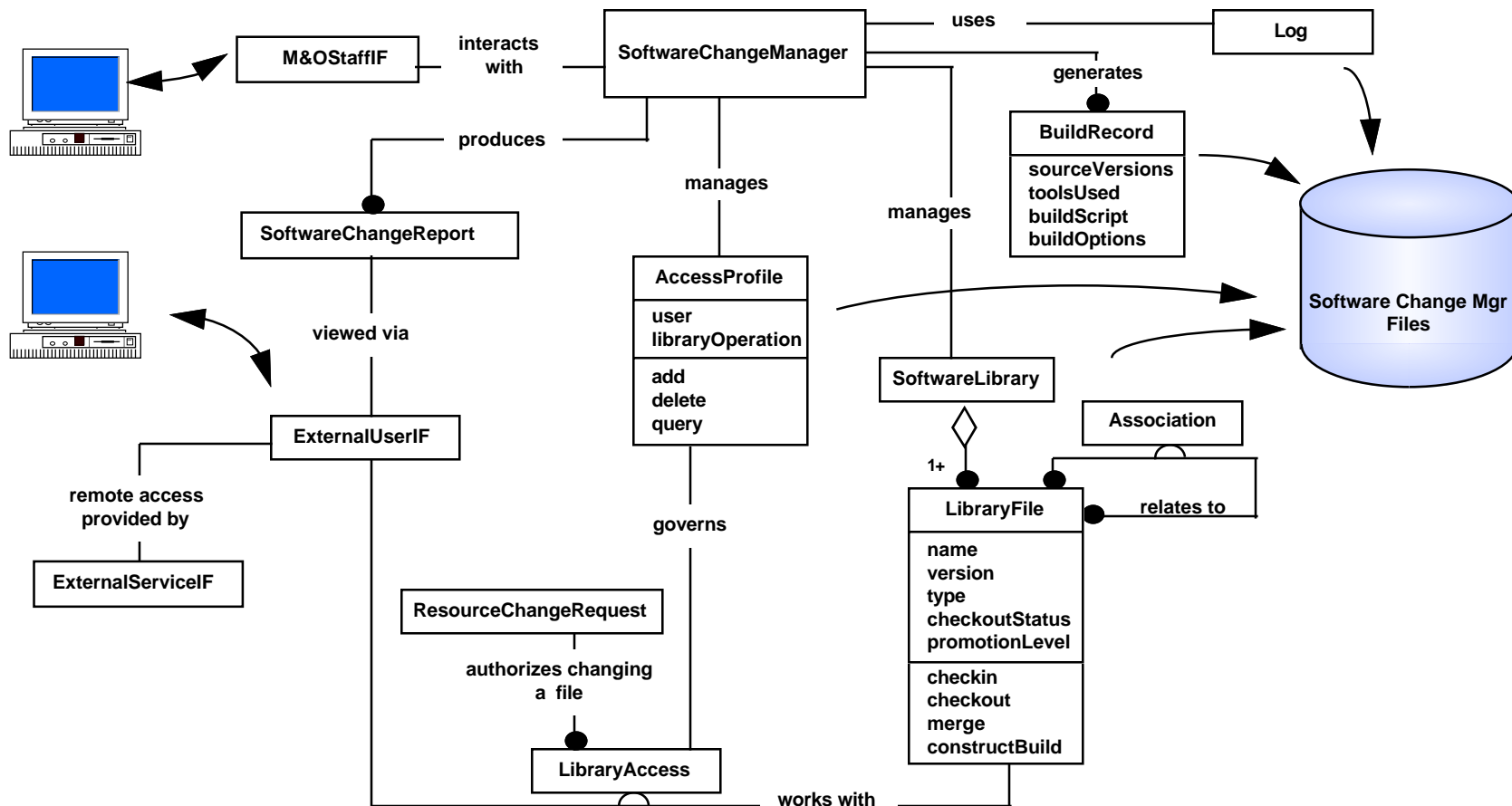
Other Software/Data

- **External Service IF** electronic interface for remote user access

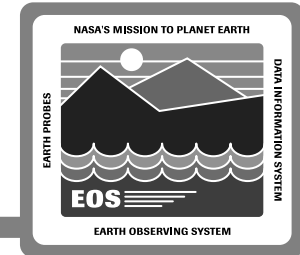
Software Change Manager Design Decomposition



(COTS)



Change Request Manager Design Decomposition



CMAS Software

- **Change Request Manager** service manager that stores, modifies, and retrieves change request data
- **M&O Staff IF** administrator's interface for entering commands and data and for viewing results

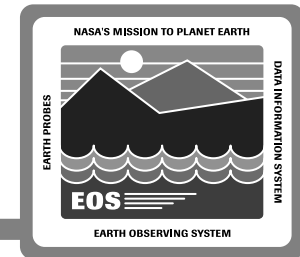
CMAS Data

- **Resource Change Request** description and status of a proposed change to ECS resources
- **Assessment Request** request to assess the impact of proposed changes to ECS resources
- **Resource Change Request Assessment** organizations' assessments of proposed changes to ECS resources
- **Library Access** regulates access to operations on library files
- **Resource Change Request Report** formatted, ordered views of change request data

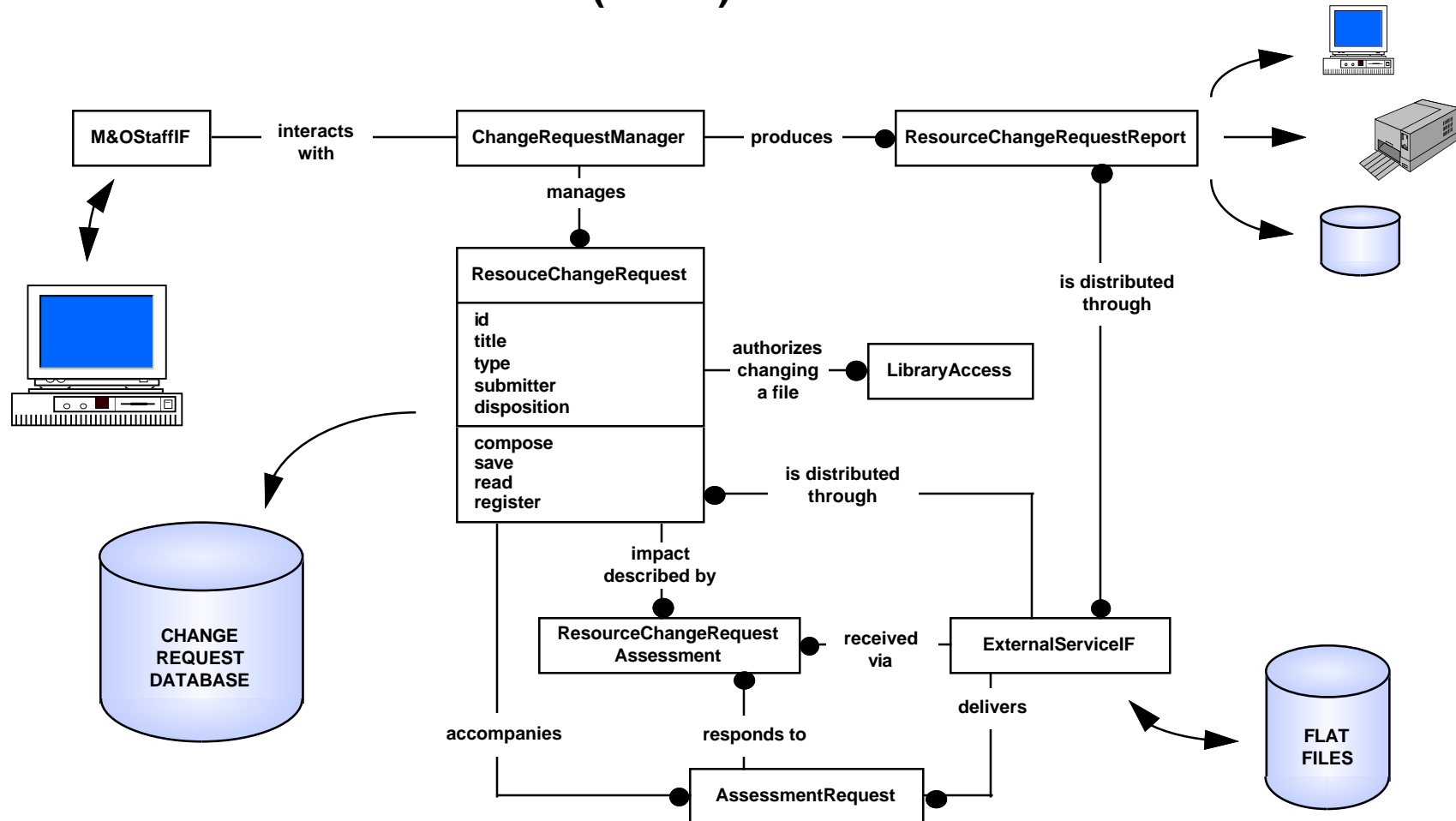
Other Software/Data

- **External Service IF** electronic interfaces for remote access to resource change requests, assessments, and reports

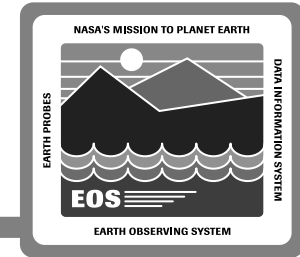
Change Request Manager Design Decomposition



(COTS)



Baseline Manager Design Decomposition



CMAS Software

- **Baseline Manager** service manager that stores, modifies, and retrieves ECS baseline data
- **M&O Staff IF** administrator's interface for entering commands and data and for viewing results

CMAS Data

- **CM Baseline** records identifying ECS baselines and the versions of resources that comprise them
- **Managed Resource** software, hardware, data, and documentation under CCB control
- **Resource Profile** key, technical information about resources that comprise ECS baselines
- **Baseline Mgmt Report** formatted, ordered views of CM baseline data

Other Software/Data

- **External Service IF** electronic interfaces for remote access to baseline data and reports

The logo for the Earth Observing System (EOS) is a square graphic with a white border. At the top, the text "NASA'S MISSION TO PLANET EARTH" is written in a sans-serif font. On the left side, "EARTH PROBES" is written vertically. On the right side, "DATA INFORMATION SYSTEM" is written vertically. The central graphic depicts a landscape with a sun or moon in the sky, two mountain peaks, and wavy lines representing water. The letters "EOS" are prominently displayed in the lower-left of the central graphic. At the bottom of the logo, the text "EARTH OBSERVING SYSTEM" is written in a bold, sans-serif font.

```

    usecaseDiagram
      actor M&OStaffIF
      actor BaselineManager
      actor ExternalServiceIF

      usecase CMBaseline as CMBaseline
      usecase ResourceProfile as ResourceProfile
      usecase ManagedResource as ManagedResource
      usecase BaselineManagementReport as BaselineManagementReport

      CMBaseline --> CMBaseline : ID, location, version, status
      ResourceProfile --> ResourceProfile : ID, version, characteristics, point of contact, description
      ManagedResource --> ManagedResource : apv'd for operation

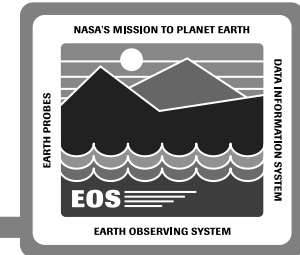
      M&OStaffIF -- interacts with --> BaselineManager
      BaselineManager -- manages --> CMBaseline
      BaselineManager -- produces --> BaselineManagementReport
      BaselineManagementReport -- is distributed through --> ExternalServiceIF

      CMBaseline -- identifies --> ManagedResource : 1+
      ResourceProfile -- describes --> ManagedResource
      ResourceProfile -- provided via --> ExternalServiceIF
      BaselineManagementReport -- provided via --> ExternalServiceIF

      BaselineManagementDatabase[(Baseline Management Database)] -- baseline data --> CMBaseline
      CMBaseline --> BaselineManagementDatabase
      M&OInventoryDatabase[(M&O Inventory Database)] --> ExternalServiceIF
  
```

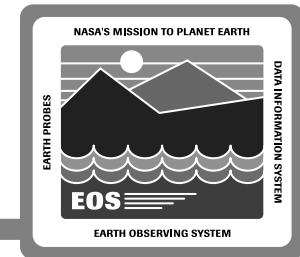
Configuration Management Scenario

Software CM for Algorithm I&T

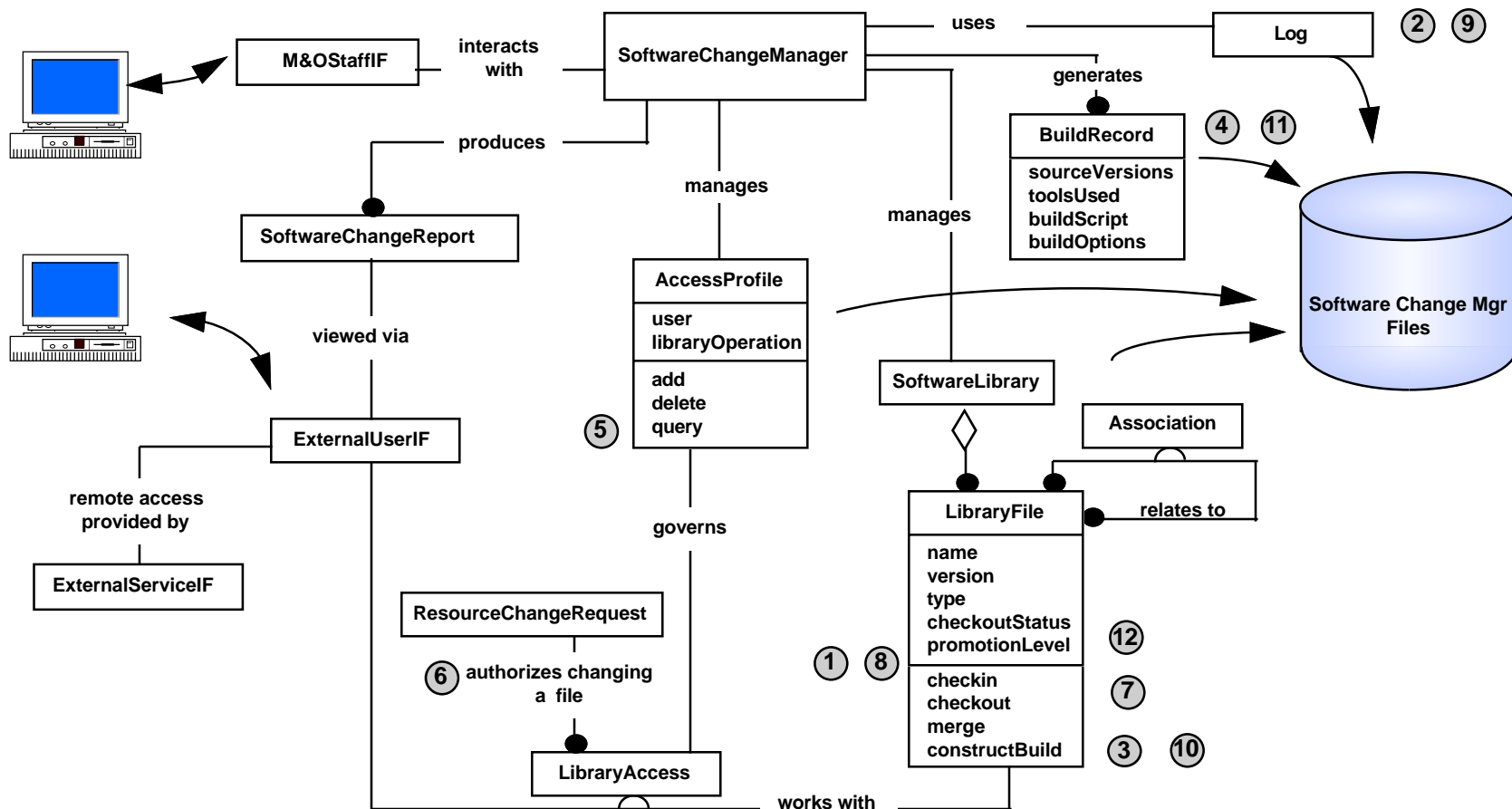


SITE ACTIVITY	SYSTEM ACTION
Place algorithm under CM	Checks in files ① Logs change ②
Integrate with toolkit (SCF version)	Executes build script files ③ Creates build records ④
Test algorithm/Find error	
Debug algorithm	Verifies permissions ⑤ Verifies change request ⑥ Checks out files for modification ⑦ Checks in modified files ⑧ Logs change ⑨
Integrate toolkit (DAAC version)	Executes build scripts ⑩ Creates build records ⑪
Test algorithm	
Process acceptance	
Release algorithm to production	Records promotion level/baseline identifiers ⑫

Scenario Software CM for Algorithm I&T



(COTS)



Configuration Management Summary



- **Software CM Tool (COTS)**
 - Key selection made: “ClearCase”
- **Change Request Manager Tool (COTS)**
 - Quality assurance products (ClearCase plug-ins)
 - Defect tracking; metrics reporting
 - QualTrak Corp. and Scopus products
- **Baseline Manager Tool (Custom)**
 - Built on RDBMS